Building the Digital Coast

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Priority Coastal Issues

- **Land use planning (growth management)**
- **Coastal conservation**
- **Hazards (flooding/inundation/storm surge)**
- **Water quality**
- **Marine planning and ocean governance**
- **Erosion and shoreline change management**
- **Protected areas management**

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Common Geospatial Needs

- **High resolution imagery**
- **Land cover and land use**
- **Integrated Topo/Bathy**
- **Climate data and forecasts**
- **Shoreline and change rates**
- **Flood maps and prediction**
- **Data Standards and access**

Common Geospatial Needs

- Training
- Scenario prediction tools
- Techie tools and non-techie tools
- Awareness of existing data, tools, and training
- Improved intergovernmental coordination
- $$$$$$

Vision

- Enabling platform providing easy access to data, tools, and information
- Coastal organizations come together to address coastal issues
- Evolves to a community resource

The Digital Coast is not

- the end all, be all system for NOAA

But the Digital Coast does provide

- a common delivery platform for organizations
- a common information platform for coastal decision makers

Digital Coast in a Nutshell

PACKAGING and PARTNERSHIPS

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Digital Coast PACKAGING

- **Data**
- **Tools**
- **Training**
- **In Action Profiles**

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DIGITAL COAST

Building the Digital Coast

Phase one is now available; additional data and information will be available in phase two, which is scheduled for release in late fall.

Learn more...

Digital Coast Partnership

Phase two is being led by the Digital Coast partner network. These partners, who are either primary users of the system or content providers, will help NOAA prioritize the components that will be added during phase two and all future expansion efforts.

Learn more...

Data

Learn more about the kinds of data available and download data.

Tools

Use these tools to turn data into useful information your organization needs.

Training

Update your skills by participating in one of these training programs.

Digital Coast In Action

See how data and tools are used to address coastal management issues.

Digital Coast Data

Immediate access to data for the geographic region of your choice.

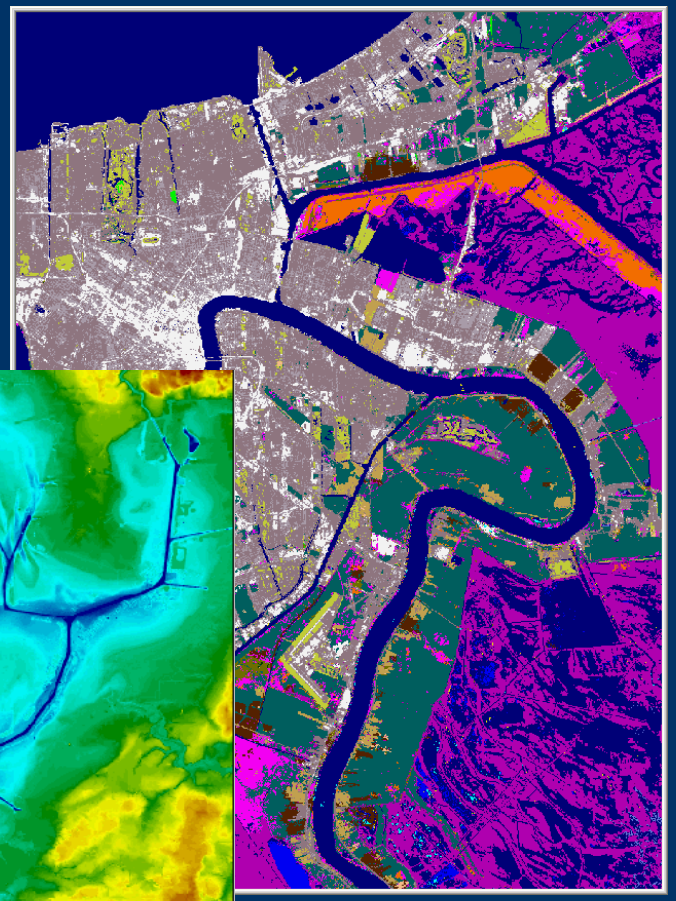
Download Data

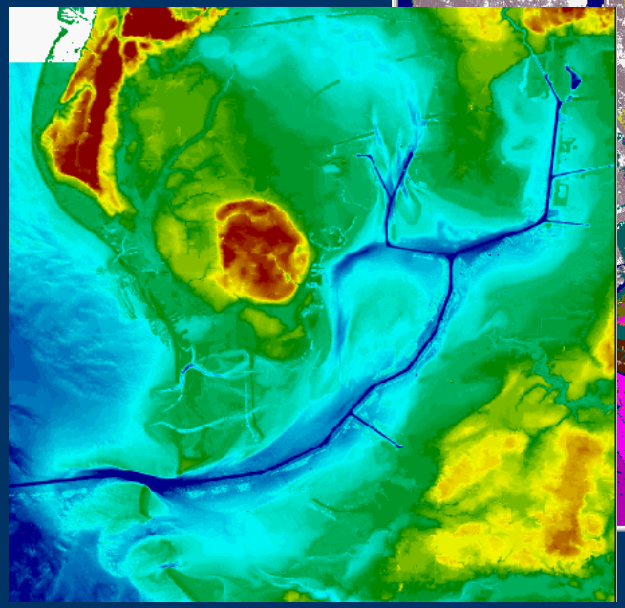
About Digital Coast

Digital Coast is being built to provide the total package needed by state, local, and non-profit organizations not only offering easy access to downloadable data, but also the data-specific training, sample applications, and tools needed to address coastal issues.

Sample Data

- Land cover & land use
- Imagery
- Lidar
- Benthic habitat
- Shoreline
- Bathymetry





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Tools

Decision Support

- Habitat Priority Planner
- Nonpoint-Source Pollution and Erosion Comparison Tool
- Impervious Surface Analysis Tool
- CanVis Visual Simulation Tool
- Multipurpose Marine Cadastre

Informational

- Storm Mapping Tutorial
- Storm Data Resource

Data Access and Visualization

- Hurricane Evacuation Zones Mapping Tool
- Legislative Atlas
- Historical Hurricane Tracks IMS
- Hazard Assessment Tool

Data Handling Tools

- Lidar Data Handler
- Chart Reprojector
- Electronic Navigational Chart Handler
- Nautical Chart Viewer

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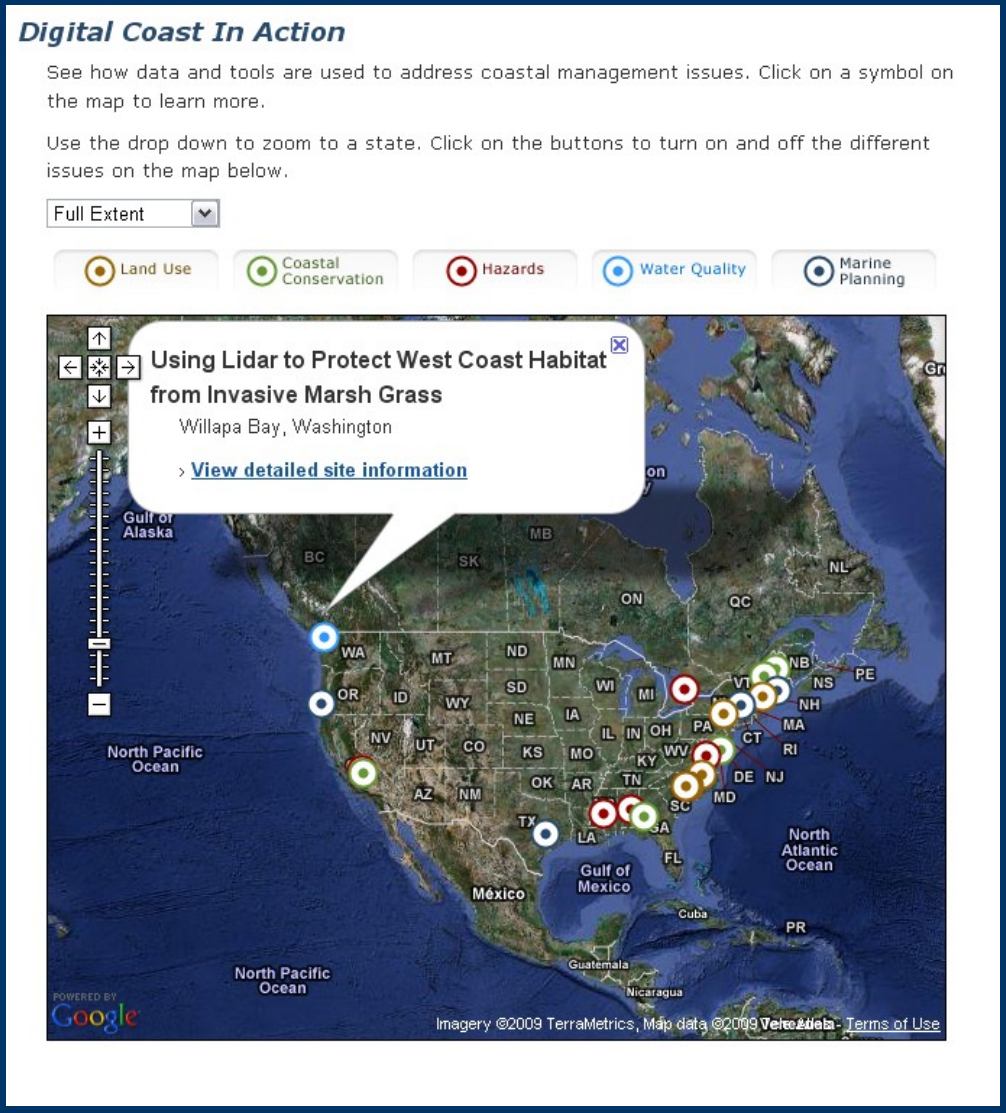
Digital Coast in Action


Digital Coast In Action
See how data and tools are used to address coastal management issues. Click on a symbol on the map to learn more.
Use the drop down to zoom to a state. Click on the buttons to turn on and off the different issues on the map below.
Full Extent
Land Use
Coastal Conservation
Hazards
Water Quality
Marine Planning
Using Lidar to Protect West Coast Habitat from Invasive Marsh Grass
Willapa Bay, Washington
View detailed site information
Gulf of Alaska
North Pacific Ocean
North Atlantic Ocean
Gulf of Mexico
México
Cuba
Guatemala
Nicaragua
North Pacific Ocean
POWERED BY Google
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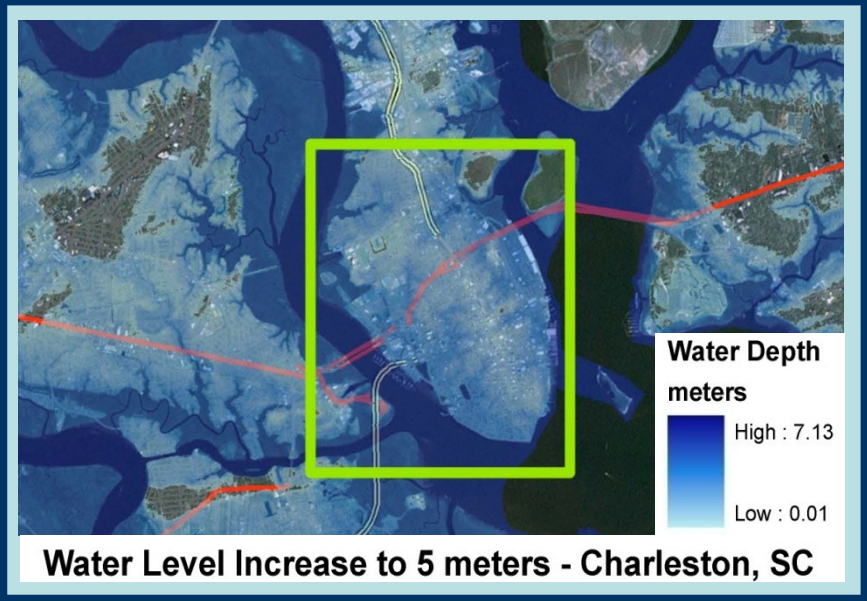
Digital Coast in Action

- Visualize sea level rise impacts
- Gather regional governance data
- Develop conservation plans
- Get public involved in planning
- Educate public about hazard risks
- Create runoff scenarios



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Digital Coast in Action

Use CanVis to visualize cumulative impacts

Before After

CanVis can also be used to visualize sea level rise

Before After

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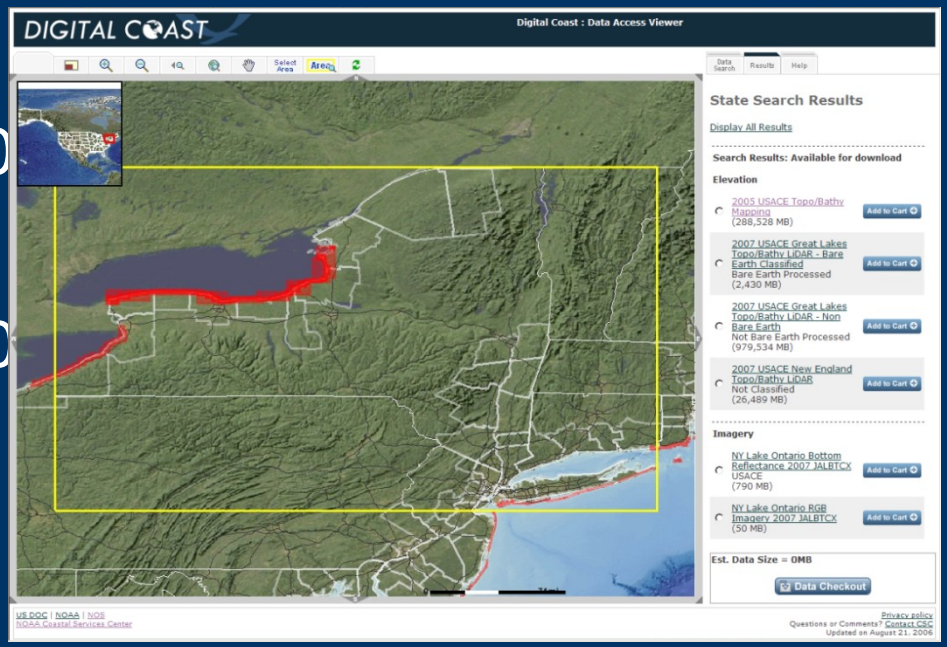
Digital Coast and USACE

USACE Products:

- Coastal Mapping Data (200
- Tools (2009)
- Digital Coast in Action (200



Data downloads:

- >5,300 downloads
- 475 GB
- ~170B points

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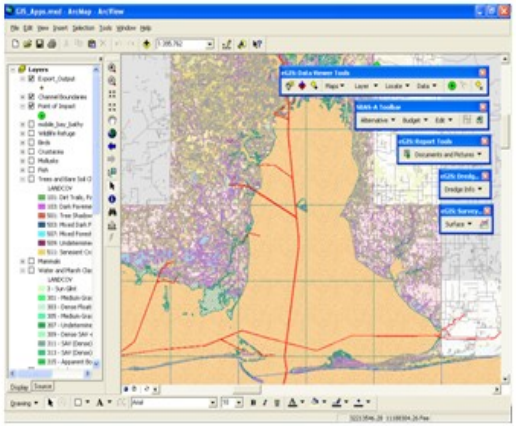
Tools

eCoastal Toolbox

Provided by the U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) eCoastal program provides data management solutions for coastal projects. The eCoastal Toolbox is a comprehensive set of applications that enable ArcGIS users to gain access to user-friendly interfaces for data retrieval and to simplify complex geographic information system (GIS) analysis procedures. eCoastal ArcMap toolbars include the following product features: Survey Tools; Profile Loader; and Sediment Budget Analysis System for ArcView (SBAS-A). These tools were specifically designed to address the needs of coastal engineers.



Features

Survey Tools allows for the design and analysis of raster grids, triangulated irregular network (TIN) surfaces, and the loading and analysis of hydrographic survey data.

Profile Loader allows users to import and format profile data directly into the database.

SBAS-A helps users to calculate and display local and regional sediment budgets, including single and multiple inlets, estuaries, bays, adjacent beaches, and through the watershed.

Digital Coast In Action

Hazards

Applying Coastal Lidar Data to Hurricane Katrina Analysis in the Gulf Coast

Hurricane Katrina made landfall in southeastern Louisiana as a Category Three storm on August 29, 2005. Dauphin Island, Alabama, which is approximately 90 miles east of the place where the hurricane made landfall, experienced barrier island "rollover" (i.e., it migrated landward) because of the strong wind and wave action. Lidar elevation data, which was collected at various intervals pre- and post-storm, can be compared by users, thereby helping to quantify the changes that occurred on Dauphin Island due to Hurricane Katrina.

Related Data

- USACE Bathymetry and Topography

Related Tools

- eCoastal Toolbox
- Lidar Data Handler

The Process

The Compact Hydrographic Airborne Rapid Total Survey (CHARTS) team flew coastal Mississippi, Alabama, and Florida in May of 2004, providing a baseline lidar data set. CHARTS was developed by the U.S. Army Corps of Engineers Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX). NASA's Experimental Advanced Airborne Research Lidar (EAARL) surveyed the area again in September 2005 in response to Hurricane Katrina. The pre- and post-storm lidar surveys showed the dramatic impact of Katrina on the islands—the hurricane destroyed most of the homes and moved sand from the Gulf side to the bay side (roll over). Aerial photography and videos that were collected helped the project partners to interpret the elevation data.

Understanding how coastal barrier islands respond to storms and monitoring future change is important in determining how effectively the islands will serve as protective barriers for the mainland during future storms. Analyzing the change in the elevation data also helps users to perform a rapid assessment of impacts to infrastructure such as roads, houses, and bridges.

Digital Coast

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Digital Coast PARTNERSHIP GROUP

- Association of State Floodplain Managers
- Coastal States Organization
- National Association of Counties
- National States Geographic Information Council
- The Nature Conservancy

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What does the Digital Coast mean for the partnership group?

- **Coastal data, tools, training, case studies**
- **National exposure**
- **Leadership opportunity**
- **Opportunity to leverage resources**
- **Ability to promote best practices**

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Additional Digital Coast Participants

- **Collaborators**
  - MS Coordinating Council for GIS and Remote Sensing
  - Integrated Ocean and Coastal Mapping (IOCM)
- **Content Providers**
  - Various State Partners
  - National Geodetic Survey
  - U.S. Army Corps of Engineers
  - U.S. Geological Survey
  - Private Sector

What does this mean for IOCM?

- **Efficient product and service delivery**
- **A customer driven portfolio**
- **A means of reaching strategic priorities**
- **An opportunity to leverage resources**
- **A way to demonstrate outcomes**
- **Increased exposure for geospatial**

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Future Plans for the Digital Coast

- Build content
- Build partnership group
- Build additional success stories
- Build the user community

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www.csc.noaa.gov/digitalcoast

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Extra Slides

Coastal Challenges

- 53% of population living in coastal areas, only 17% of nation's land area
- 57% of U.S. GDP from coastal watershed counties
  - $6-30 billion per year from beach recreation
  - $10-26 billion per year from recreational fishing
  - $4.9-$49 billion per year generated from coastal wildlife viewing
  - $15 billion spent yearly by local government on Great Lakes restoration

NOAA Coastal Services Center

Mission – linking people, information, and technology in the coastal zone

Constituents – organizations impacting coastal communities

Role – bring new skills, data, and information

Result – decision makers have the tools they need

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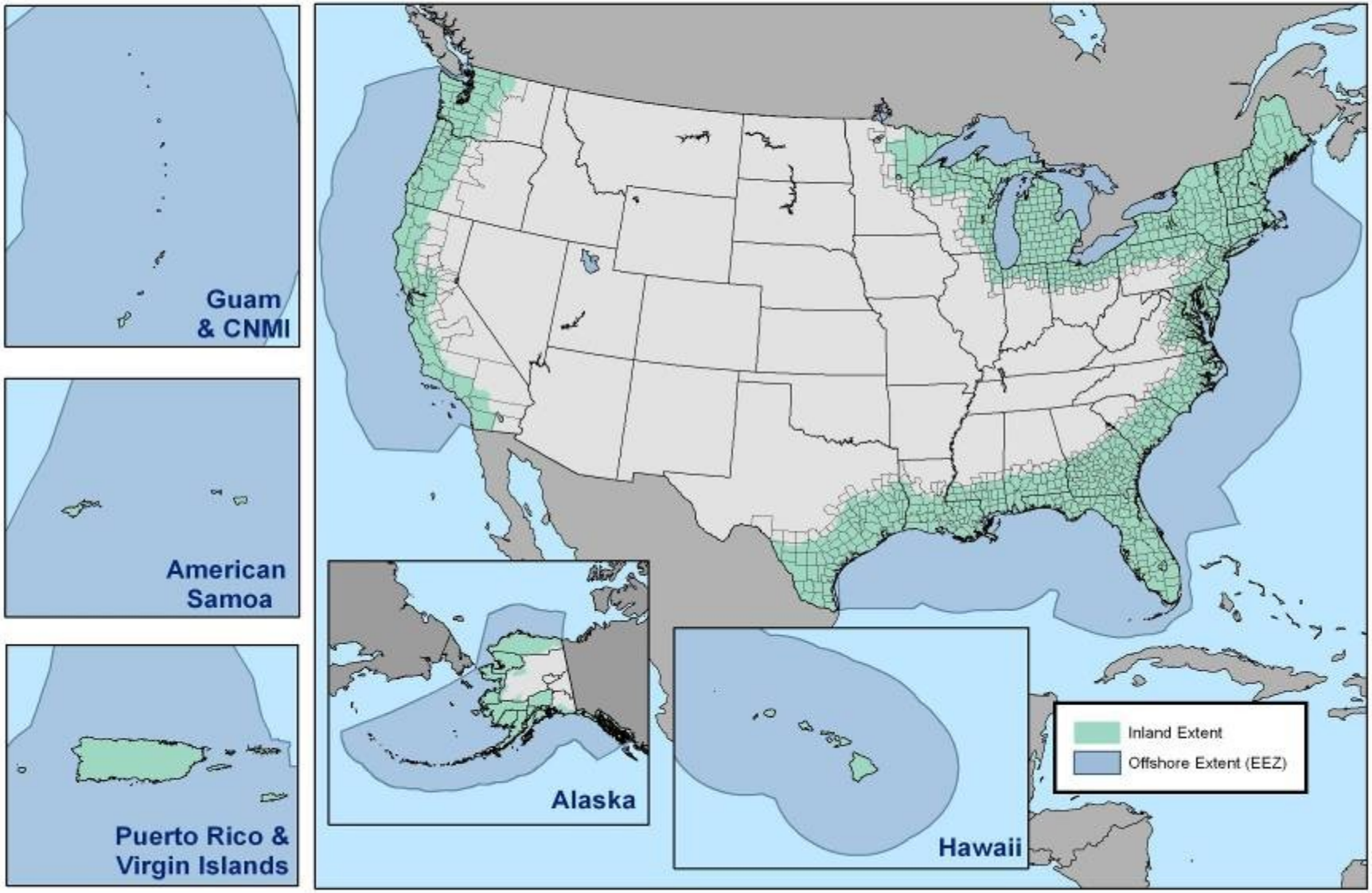
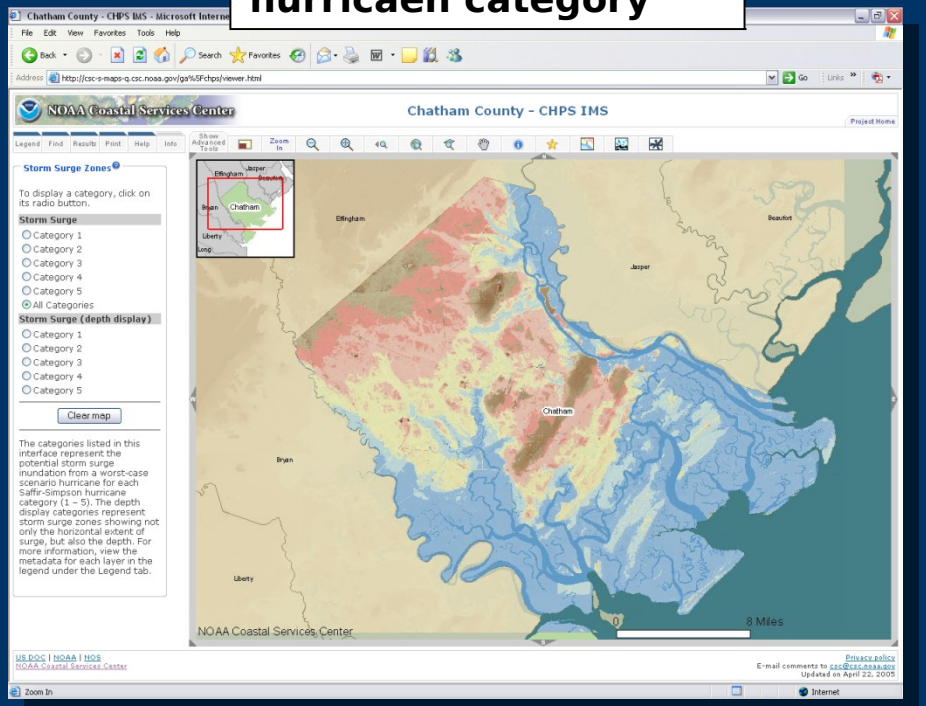
NOAA CSC - Digital Coast Initiative

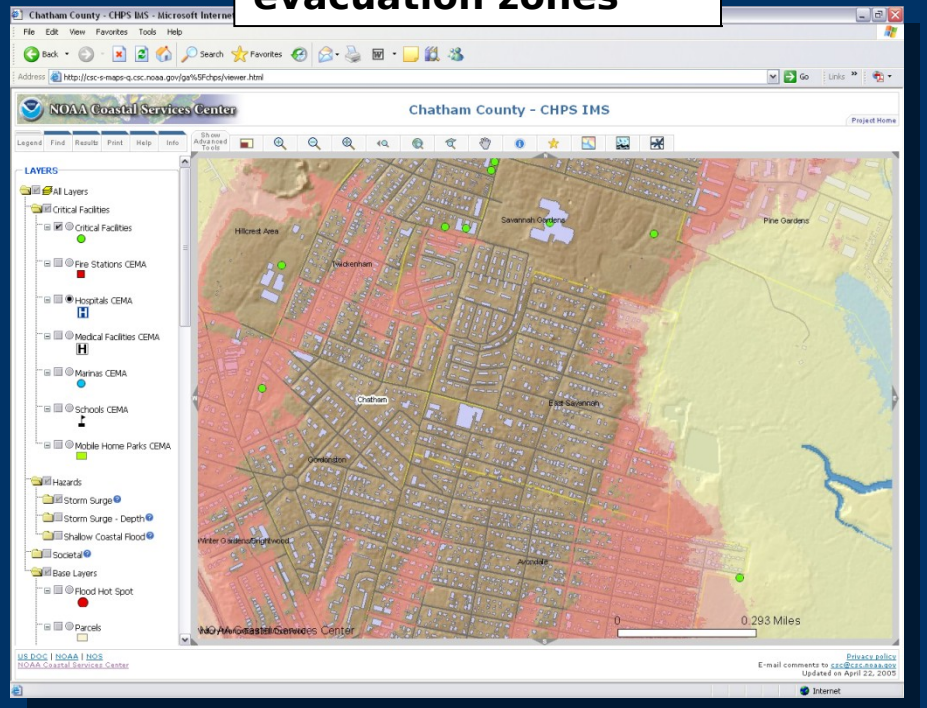


Comprehensive Hurricane Preparedness Study Tool

View horizontal extent of storm surge zones for each hurricaen category


Chatham County - CHPS IMS
NOAA Coastal Services Center
Storm Surge Zones
To display a category, click on its radio button.
Storm Surge
Category 1
Category 2
Category 3
Category 4
Category 5
All Categories
Storm Surge (depth display)
Category 1
Category 2
Category 3
Category 4
Category 5
Clear map
The categories listed in this interface represent the potential storm surge inundation from a worst-case scenario hurricane for each Saffir-Simpson hurricane category (1 – 5). The depth display categories represent storm surge zones showing not only the horizontal extent of surge, but also the depth. For more information, view the metadata for each layer in the legend under the Legend tab.
Effingham
Beaufort
Jasper
Chatham
Bryan
Liberty
8 Miles
NOAA Coastal Services Center

View Street level Impacts to determine evacuation zones



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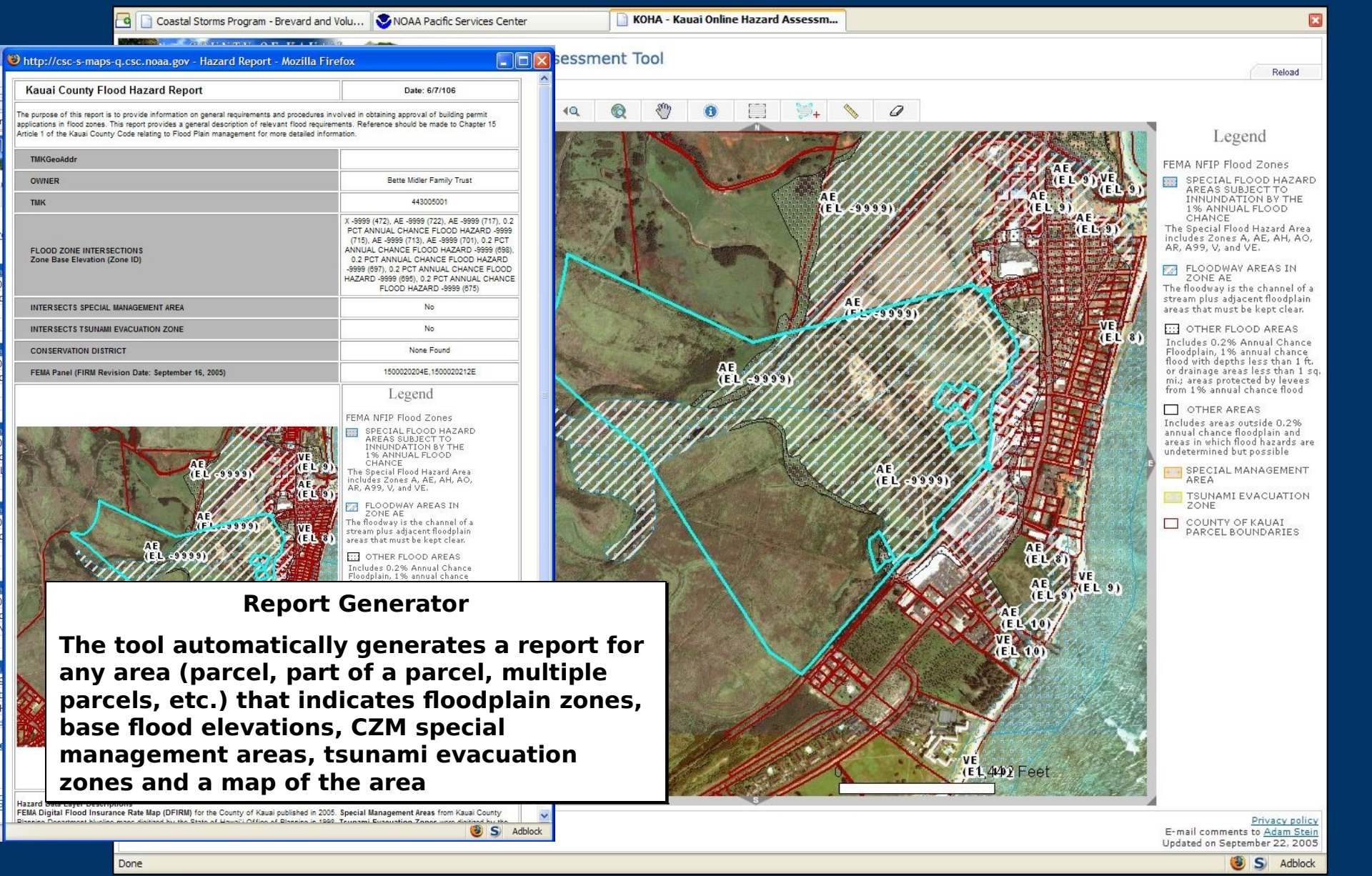
Hazard Assessment Tool

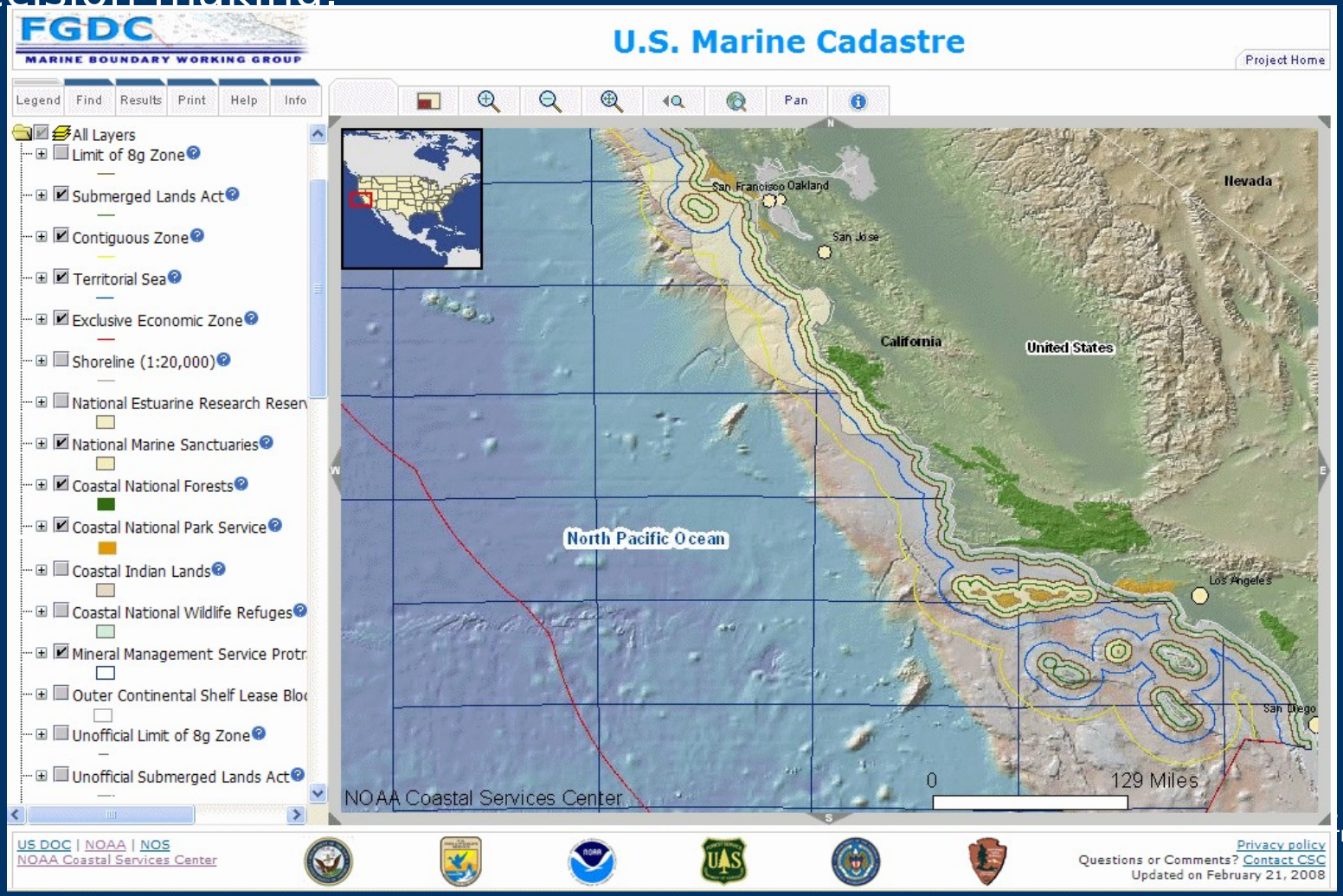

Coastal Storms Program - Brevard and Volu...
NOAA Pacific Services Center
KOHA - Kauai Online Hazard Assessm...
http://csc-s-maps-q.csc.noaa.gov - Hazard Report - Mozilla Firefox
Kauai County Flood Hazard Report
Date: 6/7/106
The purpose of this report is to provide information on general requirements and procedures involved in obtaining approval of building permit applications in flood zones. This report provides a general description of relevant flood requirements. Reference should be made to Chapter 15 Article 1 of the Kauai County Code relating to Flood Plain management for more detailed information.
TMKGeoAddr
OWNER
Bette Midler Family Trust
TMK
443005001
FLOOD ZONE INTERSECTIONS
Zone Base Elevation (Zone ID)
X -9999 (472), AE -9999 (722), AE -9999 (717), 0.2 PCT ANNUAL CHANCE FLOOD HAZARD -9999 (715), AE -9999 (713), AE -9999 (701), 0.2 PCT ANNUAL CHANCE FLOOD HAZARD -9999 (698), 0.2 PCT ANNUAL CHANCE FLOOD HAZARD -9999 (697), 0.2 PCT ANNUAL CHANCE FLOOD HAZARD -9999 (695), 0.2 PCT ANNUAL CHANCE FLOOD HAZARD -9999 (675)
INTERSECTS SPECIAL MANAGEMENT AREA
No
INTERSECTS TSUNAMI EVACUATION ZONE
No
CONSERVATION DISTRICT
None Found
FEMA Panel (FIRM Revision Date: September 16, 2005)
1500020204E,1500020212E
Legend
FEMA NFIP Flood Zones
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INNUNDATION BY THE 1% ANNUAL FLOOD CHANCE
The Special Flood Hazard Area includes Zones A, AE, AH, AO, AR, A99, V, and VE.
FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus adjacent floodplain areas that must be kept clear.
OTHER FLOOD AREAS
Includes 0.2% Annual Chance Floodplain, 1% annual chance
FEMA Digital Flood Insurance Rate Map (DFIRM) for the County of Kauai published in 2005. Special Management Areas from Kauai County
Adblock
Reload
Legend
FEMA NFIP Flood Zones
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INNUNDATION BY THE 1% ANNUAL FLOOD CHANCE
The Special Flood Hazard Area includes Zones A, AE, AH, AO, AR, A99, V, and VE.
FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus adjacent floodplain areas that must be kept clear.
OTHER FLOOD AREAS
Includes 0.2% Annual Chance Floodplain, 1% annual chance flood with depths less than 1 ft. or drainage areas less than 1 sq. mi.; areas protected by levees from 1% annual chance flood
OTHER AREAS
Includes areas outside 0.2% annual chance floodplain and areas in which flood hazards are undetermined but possible
SPECIAL MANAGEMENT AREA
TSUNAMI EVACUATION ZONE
COUNTY OF KAUAI PARCEL BOUNDARIES
AE (EL -9999)
VE (EL 9)
AE (EL 9)
VE (EL 8)
AE (EL 8)
AE (EL 10)
VE (EL 10)
0 400 Feet
Privacy policy
E-mail comments to Adam Stein
Updated on September 22, 2005
Done
Adblock

Report Generator

The tool automatically generates a report for any area (parcel, part of a parcel, multiple parcels, etc.) that indicates floodplain zones, base flood elevations, CZM special management areas, tsunami evacuation zones and a map of the area

Multipurpose Marine Cadastre

A marine information system for the outer continental shelf and state waters that provides a data framework to support decision making.



Center
TECHNOLOGY

Priority Issues

- Land use planning
- Hazards and community resilience
- Water quality
- Habitat conservation
- Marine spatial planning and ocean governance
- Climate change

Digital Coast In Action

Marine Planning

Applying eCoastal Tools to Regional Sediment Management in the Northern Gulf of Mexico

In the past, the U.S. Army Corps of Engineers (USACE) has focused on managing sand resources on a project-by-project basis. This approach to sand management may not adequately consider the impact of individual projects on downdrift projects. To address this issue, the USACE initiated regional sediment management (RSM) efforts to assess the benefits of managing sediment resources on a regional scale.

The RSM demonstration program of the Mobile [Alabama] District's Northern Gulf of Mexico implemented the RSM concept using components of the USACE eCoastal program. The eCoastal program is an enterprise geographic information system (GIS)—in other words, it fosters organization-wide GIS implementation, operation, and management. This approach gives regional and local coastal entities the baseline information needed for effective planning and prediction related to navigation and flood-risk management.

The Process

One initiative of the Northern Gulf of Mexico RSM program was to develop a regional sediment budget to quantify sediment erosion and accretion for over 375 miles of shoreline. The eCoastal Toolbox, a set of desktop applications for easing data retrieval and simplifying complex GIS analysis procedures, contains a tool named the Sediment Budget Analysis System for ArcView (SBAS-A). This application provides a framework for formulating, documenting, and calculating sediment budgets. It was used in combination with other models to develop a sediment budget for the Northern Gulf of Mexico region.

The sediment budget provided the first regional context for developing engineering alternatives and assessing potential regional impacts. The overall program helped potential users to identify data collection needs, and it provided a framework for the development of a regional GIS.

Related Data

- USACE Bathymetry and Topography

Related Tools

- eCoastal Toolbox